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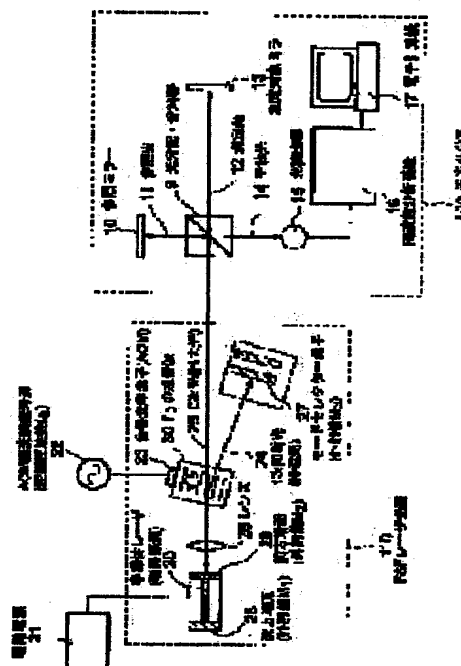
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(54) OPTICAL FREQUENCY MODULATION METHOD RANGE FINDER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an optical frequency modulation method range finder where an FSF light-source configuration is simplified for reducing cost, while degradation in sensitivity caused by the conventional multi-mode oscillation is prevented.

SOLUTION: A laser resonator comprises a rear end surface 28 of a semiconductor laser 20 and a mode selector element 27. The optical output from the semiconductor laser 20 is guided into an acousto-optical element 23 via a lens 26, and ultrasonic wave 30 is excited in the acoustic optical element 23, when applied with signal f_0 from an AOM modulating signal source 22. At the acoustic optical element 23, Bragg diffraction phenomenon occurs to split it into zeroth- order beam 25 and first-order diffracted beam 24, with the first-order diffracted beam 24 being outputted while deviating by f_0 in optical frequency due to the Doppler frequency shift. The first-order diffracted beam 24 has Fabry-Perot resonator condition, which only reflects arbitrary one oscillation mode component with the mode selector element 27, whose reflection leads it into the acousto-optical element 23 to undergo the Doppler frequency shift, resulting in feedback to the semiconductor laser 20.



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